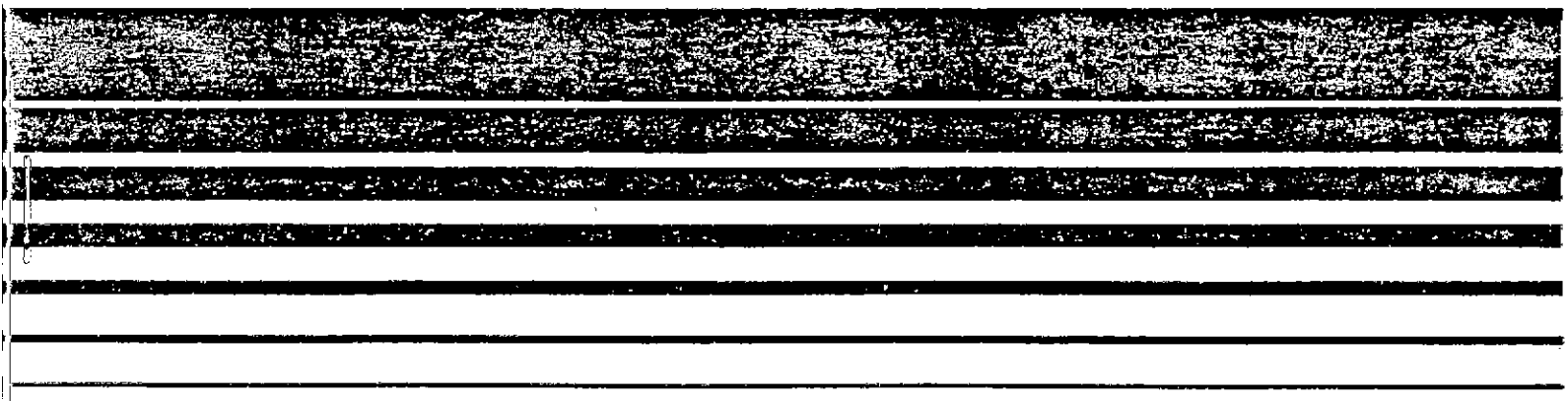
United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park NC 27711

EPA-450/2-83-007
November 1983

Air

National Air Audit System Guidelines for FY 84



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National Air Audit System Guidelines for FY 84

Control Programs Development Division

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air, Noise, and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

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FOREWORD

The National Air Audit System is a unique example of a program that was conceived as a State/local/EPA cooperative effort and has remained so throughout its development period. This audit guideline document was prepared under a process that exemplifies a cooperative effort among all levels of government--Federal, State, and local. Developing and implementing programs in partnership with States and local air pollution control agencies has been a stated EPA goal for a long time, and the National Air Audit System is one of our best results to date. I believe that the phrase "State/local/EPA partnership" has been shown to have true meaning in the development of the National Air Audit System, and I hope that this initiative can serve as a model for the development of other shared programs.

This year's effort will be the pilot phase of what should become a dynamic, on-going cooperative program. We will learn from our initial auditing efforts and improvements in the program will be a goal for future years.

I look forward with interest to reviewing the progress made in implementing these National Audit Guidelines. We must all strive to build the best possible air pollution control agencies at every level of government. The National Air Audit System will be a useful tool to help us all improve the management of our programs and to provide the best possible environment for all of our citizens.

Joseph A. Cannon
Acting Assistant Administrator
for Air and Radiation

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ACKNOWLEDGEMENTS

A well earned note of thanks to the following people who contributed time and energy to make these audit guidelines a reality.

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1. INTRODUCTION

This audit manual was developed through the joint efforts of State and Territorial Air Pollution Program Administrators (STAPPA), Association of Local Air Pollution Control Officials (ALAPCO), and Environmental Protection Agency (EPA). The project was directed by a work group composed of members from the three organizations. The audit guidelines in this manual were written by four subcommittees of this work group. The program areas selected by the work group for development of audit guidelines were: (a) air quality planning and SIP activity, (b) new source review, (c) compliance assurance, and (d) air monitoring. The subcommittees were chaired by State agency personnel with EPA staff serving as expeditors. All State agencies, local agencies, EPA Regional Offices, and EPA Headquarters were provided an opportunity to comment on a draft version of these audit guidelines. This manual, from concept to finished product, is the result of a cooperative effort between State agencies, local agencies, and EPA. While it necessarily reflects a compromise between the competing interests of depth of analysis, breadth of review, and resources to accomplish the audit, it does represent the "real world" ideas of people who actually implement the duties.

The need for a National Air Audit System (NAAS) became apparent with the increased delegation of responsibility to State and local air pollution control agencies. As a first step in developing the audit program, representatives of STAPPA, ALAPCO, and EPA met in late 1982 to discuss the concept. In April 1983, the group met again to identify the essential elements and appoint the subcommittees to write the audit guidelines. The work group met for a third time in October 1983 to discuss the implementation of the FY 84 National Air Audit System.

Auditing of State and local agencies is not a new activity as the EPA Regional Offices have been conducting some form of evaluation and audit for many years. However, the frequency, depth, and procedures for conducting these audits have varied greatly from Region to Region within EPA and even State to State within the Regions. This was reflected in a survey report that EPA's Office of Air Quality Planning and Standards (OAQPS) issued on the EPA Regional Office air audit programs (Survey of Regional Air Audit Programs, June 1983). Prior to this survey, however, the State and local agencies had begun expressing concern over the Regional inconsistency of the oversight programs. The general tenor of the comments was that EPA should develop uniform evaluation criteria that would be applied on a national basis. From this beginning came the National Air Audit System and the FY 84 audit guidelines contained in this document.

The three meetings mentioned earlier resulted in important guidance agreements that will formulate EPA policy in initially applying these guidelines. These agreements are discussed below:

- EPA will hold multi-Regional workshops to ensure Regional consistency in the performance of the audits (tentatively scheduled for mid-January 1984).

- EPA Regional Offices will select the composition of the audit teams. A crossover team approach (State/local and outside Regional Office representatives) is possible for FY 84 if Regions and affected States so desire.

- Regional Offices will audit all State agencies in FY 84 and local agencies that are funded directly by EPA with Section 105 grant funds. All four audit guidelines will be applied to each audited agency (to the extent that the agency is responsible for the four programs).

- Corrective actions for deficiencies uncovered will be initiated through existing mechanisms, i.e., 105 grants, State/EPA agreements, etc.

- The national FY 84 schedule calls for the audits to be conducted by April 30, 1984, for EPA Regional Offices to forward a draft report for review and comment by the State and local agencies by June 30, 1984, and a final report prior to September 30, 1984.

- Regions will use uniform questionnaires compiled from the audit guidelines. (These will be available in January 1984).

- The OAQPS will prepare a national report based upon the results of all Regional audits. The national report will not rank agencies or focus on deficiencies of specific agencies. Drafts of the national report will be reviewed by EPA Regions and representatives of STAPPA and ALAPCO.

- The NAAS will replace current Regional Office air program audit activities. It may not, however, replace the 105 grant evaluations that are specified in the grant regulations. Regions have the flexibility to expand the audit to address additional topics or to explore specific areas in more detail, subject to negotiations with individual States.

- When fully developed, the NAAS will eliminate the need for much of the "item by item" Regional Office oversight on certain State and local agency programs. However, the NAAS will not be a substitute for the necessary flow of communications between State/local agencies and EPA Regional Offices.

GOALS AND OBJECTIVES OF THE NATIONAL AIR AUDIT SYSTEM

The purpose of developing national audit guidelines is to establish standardized criteria for the EPA Regions' audit of State air program activities. The primary goals of this program are to determine the obstacles (if any) which are preventing the State or local air pollution control agencies from being as effective as possible in their air quality management efforts and to provide EPA with quantitative information on how to define more effective and meaningful national programs. States are playing a larger role than ever in the planning and implementation of complex, and often controversial, air pollution control strategies. EPA oversight of these and related activities is necessary for assuring national consistency and for assisting the States in resolving identified problems. The EPA and States can also use these audit results to assure that available resources are being focused toward identified needs (e.g., attainment and maintenance of standards, adoption of regulations, implementation of regulations and technical analyses to support control strategy development).

The EPA also hopes to share the results of these audits in a manner that permits the "cross-fertilization" of innovative approaches and systems across States and Regions. Only through this national exchange can we hope to benefit from the invaluable experiences gained to date by control agencies in carrying out the requirements of the Clean Air Act.

This audit guideline outlines a program which EPA, State, and local air pollution control agencies can jointly use to:

- Meet statutory requirements;
- Assist in developing at least a minimally acceptable level of program quality;
- Allow an accounting to be made to the Congress and the public of the achievements and needs of air pollution control programs;
- Enable EPA, States, and local agencies to agree on needed technical support and areas where program improvements (including regulatory reform) should be made. This includes improvements to both EPA and State/local programs; and
- Maximize and effectively manage available resources, within the State and local agencies and EPA, resulting in expeditious attainment and maintenance of ambient air quality standards as soon as possible.

State, local, and EPA Regional Offices, working together, may identify items in addition to those of the national program which are worthy of further audit attention. In making such an identification, both the EPA Regional Office and the State/local agency should understand in advance what the reasons are and what the objectives and expected result(s) of this expanded review will be. Also, the NAAS is not intended to preclude EPA Regions from dealing, on a case-by-case basis, with significant deficiencies which are identified during the course of the audit.

The NAAS builds upon oversight procedures already in use in EPA Regional Offices. In addition, the guidelines and the audit itself are not a substitute for the necessary daily flow of communication between State/local agencies and EPA Regional Offices. It is expected that the preparation for the audit (see Audit Protocol) will utilize reports currently available from State and local agencies to EPA as fully as possible, and that EPA will work to minimize the demands on State or local staff time in conducting the audit. It is also expected that each State and local agency will cooperate with EPA during the onsite audit visit.

EPA, State, and local agencies should keep in mind that the audit is intended to improve the overall quality of air pollution control programs. This intent of improving overall performance needs to be clearly understood. The standards of performance outlined by these guidelines are not so rigid that they eliminate the flexibility afforded by the Clean Air Act. Also, these guidelines should not be construed to establish performance standards which must absolutely be achieved in practice. Moreover, while participating agencies will use the audit to point out where opportunities exist for State or local improvements, the audit is not expected to address every problem. However, EPA will continue to search for and disseminate information about better ways of consistently, effectively, and efficiently implementing a comprehensive air pollution control program. This includes possible reforms of EPA's requirements where feedback from the audits suggests that certain requirements detract from program effectiveness.

AUDIT PROTOCOL

Each Regional Office must tailor the structure of the audit according to the particular characteristics of the State and local agencies in the Region and its own operating procedures. However, certain elements and a number of procedural steps have been found useful by most Regions in conducting a successful audit. These are discussed below.

Advance Preparation

A letter should be sent to the agency well in advance of the audit. The letter should confirm the date and time of the audit (see Onsite Visit), and describe what resources the State is expected to provide, such as office space and staff time. This letter should also identify the name and title of each individual who will comprise the audit team. The EPA Region will provide the control agency with a nationally prepared checklist or questionnaire to supplement the audit guidelines. This should be sent to the State or local agency about a month in advance of the audit and, thus, will allow the agency to better prepare for the audit. It is recommended that the State or local agency fill out the questionnaire in advance, as a time saving measure, even though the auditor will go over the questionnaire during the audit. This audit information should be readily available, although it may require time to gather and compile, and should be given to the auditors when they arrive at the agency.

Onsite Visit

The primary purposes of the onsite visit are to:

- Engage in a broad discussion with agency staff to gain insight into any recent changes in the structure of the organization, discuss specific problem areas of the agency, and become acquainted with the staff in order to better open up channels of communication;
- Discuss answers to the questionnaire;
- Review onsite documents that are too cumbersome to transmit such as permits, modeling runs, and supporting files; and
- Interview personnel responsible for the daily operations of programs for air monitoring, compliance assurance, new source review, and air quality planning and SIP activities.

Typically, the audit is conducted in four phases:

- The EPA auditors for all programs meet with the State agency director and top staff to discuss the goals of the audit and to "break the ice." This meeting usually sets a cooperative tone for the visit;
- The EPA auditors conduct a discussion of the questionnaire with the person(s) in charge of each of the four activities to be audited;
- A review of the files will provide the auditors with an opportunity to verify that the implementation of required activities is properly documented. The files to be reviewed would include: permits, compliance records, air monitoring records, and SIP planning documents. More detailed information on file selection and review is provided in the following chapters.
- An exit interview is held as a wrap-up session to inform agency management of the preliminary results of the audit. This promotes harmony between EPA and the State by giving immediate feedback of the results in a face-to-face meeting between the people actually performing the audit and those responsible for the programs being audited.

The time which the audit team spends to complete the various phases of the onsite visit generally should not exceed three days. However, this general rule will be difficult to adhere to in certain instances, such as when satellite facilities of the agency being audited must also be visited. In any event, the duration of the onsite visit should be mutually agreed upon in order not to create an undue burden to the agency being audited.

AUDIT REPORT AND USE OF AUDIT DATA

Each State or local agency audit report should contain the findings for each of the four audited areas. The Regional Office should give the

State or local agency an opportunity to comment on a draft of the report before it is released outside of EPA. This allows misunderstandings and errors to be discovered before the report is finalized. Major deficiencies identified during the audit should be highlighted in a separate section (such as the summary of the report). This enables the Region to detail all the findings of the audit without causing the reader to confuse minor points with major problems. It also identifies to the audited agency those deficiencies considered most serious. Where an agency disagrees with the conclusions of the audit, they should provide to EPA written comments outlining their perspective. These will be incorporated as an appendix to the final report. The report should also highlight outstanding and/or innovative program procedures that are identified.

The audit would be of limited use without some mechanism for rectifying identified deficiencies. Therefore, it is important that the report recommend measures or steps to treat the causes for these inadequacies. Lead responsibilities for implementing these recommendations and anticipated resource requirements should also be considered.

A National Report compiling the findings of the audits conducted by the EPA Regions will be compiled by EPA Headquarters. This analysis will be based on the reports prepared by the EPA Regions as discussed above. It will present the status of implementation of the audit programs throughout the nation and will highlight areas where innovations have resulted in substantially superior performance. It will not rank agencies or focus on specific deficiencies in individual programs. While it will address areas of conflict between EPA guidance and implementation experience, it will not be a forum for addressing unresolved issues between audited agencies and EPA. The specific content of the national report will be defined by the STAPPA/ALAPCO/EPA audit work group in the spring of 1984, after some initial experience in conducting the audits.

FUTURE NAAS ACTIVITIES

This initial implementation of the NAAS is a first step of a "phased-in" procedure. The FY 84 site visits should be viewed as an opportunity to discover and identify differences between the EPA policy as reflected in the audit guidelines and actual practices in the field. The first visit should not be used to pass judgment or grade the adequacy of currently used procedures, but to establish a baseline. Subsequent site visits should then be used to measure progress in achieving the ideal program operation.

EPA plans to make mid-course corrections as NAAS experience grows. This would include, in the short term, improvements in each of the four guidelines. A spring 1984 meeting for the STAPPA/ALAPCO/EPA work group is planned for this very purpose.

The NAAS initiative is designed as a partnership effort to help EPA and State and local agencies each do their respective jobs better. It is our hope that it can become the foundation which all involved can use to make solid progress in protecting and enhancing the quality of our Nation's air.

2. AIR QUALITY PLANNING AND SIP ACTIVITY AUDIT CRITERIA

INTRODUCTION

Four major program areas in air quality planning and State Implementation Plan (SIP) activity have been singled out for evaluation in the FY 84 National Air Audit System (NAAS). These areas are:

- Air Quality Evaluation
- Emission Inventories
- Modeling
- SIP Evaluation and Implementation

Audit criteria are provided below for each program area. Each topic is prefaced by a brief discussion of what activities it encompasses and what we generally hope to accomplish through the audit review. The audit guidelines are organized to address the broader aspects of each program area in the "numbered" questions. Following each "numbered" question are supplemental questions that are intended to provide the bases for supporting and documenting the responses. A simple yes or no answer will not be considered an adequate response to the numbered questions. Where appropriate, responses should be supplemented with examples.

AIR QUALITY EVALUATION

States are continuously gathering air quality data to satisfy various statutory requirements and air management needs. The adequacy of these ambient measurements is addressed in a separate audit area dealing with monitoring requirements. This audit topic is concerned with the demonstrated State capabilities to perform air quality evaluations. This includes the ability to systematically consider available air quality data for the purpose of trends analyses, Section 107 redesignations, prioritization of air program activities, and public information. The specific areas that should be evaluated in this audit category are discussed below.

Audit Questions

1. Does the State/local agency systematically review air quality monitoring data and perform updated air quality analyses in order to track progress or compare actual air quality relative to past projections? If no,

explain why. If yes, briefly describe the procedures, content, frequency, and nature of this review.1/

a. Is there an annual publication of air quality monitoring data with comparisons to the national ambient air quality standards (NAAQS)? Either include a recent copy of this report or indicate what it contains and what period of data is covered. We are also interested in the timeliness of the report, i.e., "What is the lag time between data retrieval and publication?"

b. Does the State/local agency perform periodic reviews of Section 107 attainment status designations and submit proposed changes to EPA? Describe the review process used by the State/local agency and list the actual number of redesignations submitted from October 1, 1982, to September 30, 1983. In general terms, comment on how well the agency conforms with regulations and policy when submitting these requests to EPA.

c. Is a mechanism in place so that any results of monitoring studies that are done either by permit applicants or for special purposes can be systematically considered and included in periodic SIP updates when that data conflicts with other current information? Indicate how often this occurred and for what cases during the audit period.

2. To what extent are air quality monitoring results and modeling studies used to focus State/local agency attention and resources on priority problems?

a. For instance, are statistics on the frequency and severity of NAAQS exceedances used in any formal way to determine program priorities on a geographic basis? Give examples of studies where this has been done and how the results were used.

b. Are criteria and a plan established to relate emission source data to ambient impacts? For instance, to what degree is air quality monitoring used to identify individual emission sources or source categories that need increased regulatory or enforcement attention? Cite any recent experiences.

1/ EPA guidance on the data analysis aspects involved in the interpretation of NAAQS is provided in the following:
- "Guideline for the Interpretation of Air Quality Standards" - OAQPS No. 1.2-008 (1974 - Revised 1977).
- "Guideline for the Interpretation of Ozone Air Quality Standards" - OAQPS No. 1.2-108 (1979).
- Memorandum dated May 27, 1983, from Richard Rhoads, Director, Monitoring and Data Analysis Division, OAQPS to Gary O'Neal, Director, Environmental Services Division, Region X - "Summary of NAAQS Interpretation."

EMISSION INVENTORIES

The emission inventory provides information concerning source emissions and defines the location, magnitude, frequency, duration, and relative contribution of these emissions. An inventory is useful in designing air sampling networks, predicting ambient air quality, designing control strategies, and interpreting changes in monitored air quality data. Plans for attaining and maintaining NAAQS's are dependent on a complete and accurate emission inventory.

In the implementation of a nationwide program of air quality management, consistent methods of inventory compilation are essential. An adequate emissions inventory must be accurate, complete, and provide for consistency in planning between metropolitan areas, States, and Regions.

Audit Questions

1. Is there a centralized group/contact and does the State/local agency have a satisfactory system for acquiring and maintaining comprehensive up-to-date emissions inventory for all criteria pollutants, precursors (e.g., reactive VOC), and sources affected by national emission standards for hazardous air pollutants (NESHAPS)?

   a. Are there emission estimates and related essential data (e.g., stack parameters) for each major source of criteria pollutants (including new source performance standards sources)?

   b. Are there emission estimates and related essential data (e.g., operating rate) for all regulated minor point sources of criteria pollutants in nonattainment areas?

   c. Are there emission estimates and related essential data for all NESHAPS sources over which the agency being audited has authority?

   d. Are there current estimates of unregulated minor point and area sources for nonattainment areas?

   e. Where sources below an appropriate cutoff level (e.g., five tons per year for lead) are excluded from the point source inventory, are they accounted for, in aggregate, in the area inventory?

   f. Is there a mobile source inventory which is reflective of currently acceptable methods, emissions factors, and assumptions recommended by EPA (e.g., MOBILE 2)?

   g. Are inventory data regularly updated by a well-defined, ongoing process, and can the year of last update be easily determined? Minimum updating frequencies are:

* Every two-three years for criteria pollutants in nonattainment areas and NESHAPS sources, and three-five years for criteria pollutants in attainment areas, or

* As often as necessary to reflect start-ups, shutdowns, major process modifications, control device changes, updated emissions factors, and to assure consistency with compliance, permit, or other agency files.

2. Is the methodology employed in compiling the inventory such that inventory outputs are accurate, complete, and in conformance with appropriate guidance?

a. Are point and area source data obtained and compiled to the most recent EPA guidance documents (AP-42, APTD 1135, EPA-450/2-77-028, EPA-450/4-80-16)?

b. Are transportation data consistent with the State DPT's or local MPO's, and do growth projections comport with Section 208 water project estimates?

c. Is sufficient documentation of inputs (emission factors, stack tests, traffic counts) and calculation methods available to permit verification of the accuracy and appropriateness of the approach employed?

d. Does the system have the capability of providing both actual and allowable emission rates?

e. Are quality assurance procedures in place and implemented including:

* Validity checks (internal as well as external, the latter possibly by sending the point source records to plant management for review and updating)?
* Checks for missing sources?
* Comparison between enforcement, planning, and NSR records?

3. Is the information contained in the inventory retrievable in an appropriate format, and in sufficient detail to be compatible with the essential planning responsibilities of the agency?

a. Is the inventory computerized and operational?

b. Are a variety of reports producible from the inventory system including:

* Various category aggregations?
* Various geographical aggregations?
* Effects of changes in control measures or process modifications?
* Annual submittal to NEDS to meet SIP requirements?

c. Do emissions output data provide sufficient temporal and spatial resolution for use in modeling and SIP analysis?

d. Is emission inventory output compatible with methods used to demonstrate reasonable further progress (RFP)?

4. What was the last date of a submittal to NEDS? Is there a mechanism and/or specific contact to resolve problems and identified deficiencies?

MODELING

Air quality models are being used more extensively in the conduct of day-to-day activities in the planning and SIP program area. These activities include such things as attainment demonstrations, major source compliance determinations, new source review, evaluations of "bubbles," and assessing attainment status. Most State agencies should have the EPA reference models on-line that are available for use in these and other types of applications. The modeling audit is intended to gather information regarding the agency's demonstrated expertise and capability to perform necessary air quality modeling analyses consistent with accepted EPA procedures.2/

In accomplishing this objective, the auditor will find it necessary to review some actual modeling applications performed or evaluated at the State/local program. Because the Region will have already reviewed specific modeling analyses submitted (during the audit period) to support planning and SIP activities, it would be advisable to review the results of these evaluations when assessing the demonstrated modeling capability of the agency being audited. As a starting point for this effort, the auditor should have the State or local program prepare a list of the modeling analyses performed or reviewed during the audit period and the purpose of the modeling (e.g., permit, SIP revision, variance, enforcement action). Prior to the onsite visit, the auditor and the State/local agency should pre-select which specific modeling analyses will be audited.

Specific areas that should be evaluated during the audit include:

1. Does the State/local agency possess the capability for conducting and/or reviewing air quality modeling necessary to carry out its SIP development and evaluation role? Specifically,

a. Are there sufficient staff available with training or experience in the use of EPA reference models and the modeling guidelines? Summarize staff levels and experience and indicate the proportion of required modeling done in-house versus contractor for different

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2/ EPA guidance is provided in "Guideline on Air Quality Models," EPA-450/2-78-027, April 1978. This report is currently undergoing revision. Additional guidance is also provided in "Regional Workshops On Air Quality Modeling: Summary Report," OAQPS, April 1981 and "Guideline for Use of City-Specific EKMA In Preparing Ozone SIP's," EPA-450/4-80-027, March 1981.

types of studies. Provide a listing of or estimate the types and number of modeling analyses performed by a source (or its contractor) that were reviewed by the State or local agency during the audit period.

b. Does the State/local agency have access to an assortment of models and data bases (e.g., computerized files of ambient monitoring data and meteorological data) which is appropriate to its air quality analysis needs and responsibilities? How accessible are they, i.e., university, State, or in-house? List on-line models available to the modelers.

2. Has the State/local agency consistently demonstrated in its submittals to EPA the ability and willingness to assure satisfaction of the spirit and intent of the EPA modeling guidelines both in work performed by its own staff and in its review and approval of work performed by others? In making this determination, it is recommended that the auditor consider the following:

a. Does the agency routinely follow modeling procedures recommended by EPA?

b. In what situations have they deviated from EPA guidance?

c. Does the agency routinely contact EPA for approval prior to implementing nonreference procedures?

d. Is such contact documented?

e. Do the deviations have a sound technical basis?

3. Some actual modeling analyses should be reviewed. The number and types of studies evaluated should be tailored to properly reflect each State or local program's level of effort. Auditors should look to a paper trail of the analysis done. To aid audit case selection, the agency should provide the auditor with a list of recent modeling actions taken. The auditor will decide the number of cases to be reviewed based on available time and the number of cases modeled. The following are <u>typical</u> modeling issues and are provided as a guide for the audit to address, as appropriate:

- EPA Approved Models
- EPA Modeling Guidelines
- Screening Techniques
- Independent Review
- GEP Stack Height Criteria
- Complex Terrain
- Background Data
- Emission Inventory
- Actual/Allowable Emissions
- Significant Impacts
- Fugitive/Secondary Emissions

- Receptor Sites
- Meteorological Data
- Noncriteria Pollutants
- Worst-Case Operating Conditions
- Downwash Considerations
- EKMA Modeling

In summarizing the findings from this review, the auditor should also address the following questions:

a. How well is each air quality analysis documented and retained?

b. Are the reviews of outside analyses (industrial or contractor) documented and retained?

c. Is the documentation sufficient to allow another modeler to replicate the analysis?

SIP EVALUATION AND IMPLEMENTATION

An evaluation of SIP development and implementation activities is necessary to assess whether State plans for attainment and maintenance of standards remain responsive to identified needs and are being reasonably carried out. For this first year attempt at implementing a National Air Audit System, certain key elements (see audit questions) of specific SIP strategies have been singled out for evaluation. As discussed in the preamble to this document, focusing the NAAS review on these areas is not intended to preclude the auditor from evaluating other aspects of major SIP activity in an air program. Nor does it imply that all other SIP responsibilities are considered less important. Rather, it represents an attempt to isolate a manageable number of SIP-related efforts for national review and comparison.

Additionally, although there are no specific questions to follow on this subject, another important aspect of this audit topic involves the determination of whether responsibilities within the State/local program are adequately defined to assure the timely adoption and implementation of SIP requirements. In general, this requires that a particular individual (or group) be designated at the State and local agencies to maintain adequate coordination among the various SIP planning and implementation groups (i.e., ambient monitoring, modeling, engineering, enforcement). The responsible person(s) must be capable of taking the output from these departments through the administrative process that typically leads to adoption of control measures in the SIP. Accordingly, where a review of the audit criteria results in a negative response, the auditor should not only identify the specific deficiency but also attempt to explore and locate where the breakdown occurs. The audit is intended to provide more than a compilation of shortcomings of the air program.

Audit Questions

1. Have all required regulations and emission limits for stationary sources of criteria and Section 111(d) pollutants relied upon in the proposed or approved SIP strategy (e.g., RACT for sources of VOC covered by CTG's and other 100-ton sources, RACT for TSP) been submitted, or is satisfactory progress occurring? List required submittals that were not received during the reporting period and indicate what progress was made.

2. Have additional studies (e.g., nontraditional TSP, CO hot-spots) approved as part of SIP control strategies been carried out? List the ones that came due during the review period, identify the stated objective, and indicate whether they were completed on schedule and in a satisfactory manner.

3. Has each variance, bubble, or other site-specific SIP revision been developed consistent with EPA criteria?3/ Identify problems (if any) and list any actions of this nature by the State or local agency that should have been submitted to EPA as SIP revisions but were not.

4. If the SIP contains any approved generic emissions trading provisions, have individual transactions been processed in accordance with those requirements? The following documents and memorandum provide guidance and establish policy on emissions trading.

- Emissions Trading Policy, Statement and Issues. Document, April 7, 1982, 47 FR 15076.
- Memo from Sheldon Meyers, Director, OAQPS to Regional Air Division Directors, February 17, 1983. Emissions Trading Policy--Technical Clarifications.
- Guidelines for Oversight of State Generic Emissions Trading Rules: (draft), October 15, 1982, Regulatory Reform Staff, Office of Policy and Resource Management.

5. If applicable, are transportation control measures being implemented in accordance with the SIP? What are they? Highlight how the State/local agency maintains involvement to assure implementation.

3/ The "Air Programs Policy and Guidance Notebook" prepared by OAQPS provides the current EPA policies applicable to these types of actions.

6. Where credit for an inspection and maintenance (I/M) program has been claimed, is the program being implemented in a manner consistent with the claimed emission reductions in the approved SIP? Specific program areas to be considered include:4/

- inspection test procedures;
- emission standards;
- inspection station licensing requirements;
- emission analyzer specification and maintenance/calibration requirements;
- recordkeeping and record submittal requirements;
- quality control, audit, and surveillance procedures;
- procedures to assure that noncomplying vehicles are not operating on the public roads;
- any other official program rules, regulations, and procedures;
- public awareness plan; and
- mechanics training program if additional emissions reduction credits are being claimed for mechanics training.

7. In the case of Part D SIP's that have been "conditionally approved" or "approved with the understanding," have the schedules contained in the plan for rule adoption and implementation been adhered to? List the schedules that the State or local agency are on and summarize status/progress, as appropriate.

a. If schedules have been missed, is slippage reasonable and justifiable?

b. Is someone responsible for assuring that no further slippage occurs?

c. Was any consideration given regarding the impact on the attainment date?

4/ The Office of Mobile Source Air Pollution Control (Ann Arbor, Michigan) can be contacted for additional guidance on specific audit procedures/considerations for each of these program elements.

8. For extension areas, does the State/local agency have a satisfactory system for tracking RFP for ozone and carbon monoxide? Please describe. In particular, what is the mechanism for documenting emission reductions claimed in the required RFP report and assuring that they are consistent with inventory and/or enforcement data?

9. Are there activities to substantiate that the emission reductions claimed in the SIP are in fact being achieved in practice (e.g., VMT surveys for TCM's and emission reduction verification inspections for major VOC categories)?

10. Does the State/local program periodically determine if the growth projections contained in the SIP occur? Are they considering whether area, major, and non-major point source growth are within the SIP's projections? If growth is exceeding projections, what additional measures are going to be implemented to make up this shortfall?

11. For areas lacking a fully approved attainment strategy, are the State/local agencies taking necessary steps toward correcting the deficiencies considering the magnitude of the ambient air quality problem and the nature of the deficiencies? List areas falling into this category and describe State/local program efforts to reconcile the problem.

a. Is the State/local agency aggressively pursuing correction of each substantive deficiency for those areas where actual violations of primary NAAQS's are believed to be occurring? Please describe.

b. Where deficiencies of a minor or nonsubstantive nature are present, is there an agreed-upon plan for eventual correction? Give examples.

c. Where litigation or other legal problems are a major obstacle to correction of SIP deficiencies, does the State/local agency appear to have adequate legal representation or to otherwise be involved in a fashion likely to contribute to early resolution of the issues?

3. NEW SOURCE REVIEW AUDIT GUIDELINE

INTRODUCTION

The preconstruction review of new and modified stationary sources is an important part of an effective air pollution control program. By ensuring that potential new and modified sources of air pollution meet stringent standards of control, the preconstruction review supports efforts to improve air quality in nonattainment areas, and serves to prevent the recurrence of old air quality problems and the creation of new ones.

Under the Clean Air Act, preconstruction reviews are conducted primarily by State and local air pollution control agencies. This is consistent with Section 101(a)(3) of the Act which says that the prevention and control of air pollution at its source is the primary responsibility of State and local government. However, the Act in Section 301(a)(2) also imposes a concurrent responsibility on EPA to ensure that such reviews are conducted in an effective manner throughout the Nation, so that the minimum requirements of the Clean Air Act are met. These mutual obligations require EPA, State and local governments to treat their responsibilities seriously and with respect for each other's proper role.

Some of the audit questions raised in this section involve, in whole or in part, issues that could be affected by proposed EPA rulemaking or ongoing litigation [e.g., CMA agreement rulemaking proposed on August 25, 1983 (48 FR 38742)]. These particular questions, identified by an asterisk [*], identify those current requirements which are potentially impacted by regulatory amendment. Should changes to the affected requirements be promulgated, EPA will issue revised guidance as to how the audit should handle them. Until such time that the existing federal requirements and the State rules developed pursuant to these 40 CFR Part 51 provisions can be changed, this guideline will assume that all rules will continue to be implemented under the requirements presently in effect.

AUDIT PROTOCOL

As discussed in the general introduction to the FY 84 NAAS guidance, one of the recommended phases of the audit process is the file review which occurs during the onsite visit. For the new source review audit, permit files should be selected on the basis of permit action type, source type and size, source location, public concern, and other factors geared to selecting a variety of permitting actions and decisions by the agency. Selection criteria to consider include:

- Review new plants, replacements, and expansions;
- Review both large (major) and small (minor) sources;
- Review both PSD and non-PSD sources;

- Review sources which escaped PSD by permit restrictions on hours of operation or capacity;
- Review some of the most common source types in that State (for example, boilers and asphalt plants), but also review a variety of other source types;
- Review a PSD source near a Class I area;
- Review some sources in nonattainment and sanctioned areas, if applicable; and
- Review a controversial permit, a permit of high public interest, or one that would be of particular interest for reasons other than those described above.

By combining several of these factors in one permitting action, all the criteria above could be satisfied with only a few (less than 20) permits. It is advisable that, during the file review, persons responsible for reviewing permit applications be available to answer questions. Ideally, the individual permitting engineer would be available.

ADMINISTRATIVE PROCEDURES

Administrative procedures are important in the preconstruction review process because they guarantee, to both sources and the general public, that due process shall be followed in the review. Moreover, especially for major sources, specific statutory or regulatory requirements govern the procedures in such areas as public notice.

General agency procedures which affect the following issues should be discussed with the State or local agency at the time of the audit. In addition, evidence that these procedures were actually followed should be looked for in the course of the permit file review.

Audit Topics

Public Participation and Notification --

Public participation requirements for review of new and modified sources are set forth under 40 CFR 51.18(h) and 51.24(q). These requirements call for the issuance of a public notice which informs the public of a pending permit action and of the opportunity for public comment or hearing prior to final agency action on a source application. The auditor should evaluate various phases of the agency's public participation procedures to determine whether adequate opportunity for public participation is being afforded.

The following inquiries on public participation and notification should be made:

1. For which new or modified sources was the public afforded an opportunity to comment on proposed permits?

While the public participation requirements under 40 CFR 51.24(q) apply only to major PSD sources, §51.18(h) specifies no source cutoff which would limit the public participation process to a specific size source or larger. It is believed, however, that in practice most State and local agencies do not attempt to provide public notice for each permit issued. This would be particularly true of the minor sources whose impact on the ambient air quality would be minimal. In an effort to advise EPA of the appropriateness of the State or local agency's current procedures, the auditor should determine what criteria the agency uses to subject a permit review to public scrutiny. In particular, the auditor should determine whether, at a minimum, all major source permits as defined in Parts C and D of the Clean Air Act are required to undergo public review prior to the issuance of their final permit.

2. Do the public notices routinely provide adequate information to satisfy the agency's public participation requirements?

The public notice should inform the public of the availability for their inspection of the application submitted by the source, the estimated impact of the source on ambient air quality, and the agency's proposed action to approve or disapprove the permit. Instructions for submitting comments, as well as the opportunity for a public hearing, should also be addressed. The auditor should verify that notices issued by the agency adequately inform the public of the permit being considered and of their opportunities to provide input to the final determination.

3. Were other State and local air pollution control agencies and other officials whose jurisdictions might be affected by the proposed new or modified source adequately notified of the proposed action?

In addition to providing adequate notice to the public in general, certain parties are to receive specific notification of proposed permit actions where those parties would be directly affected by the proposed source. The auditor should verify that the agency has, and uses, a mechanism for notifying the appropriate government officials when the proposed source may affect their jurisdiction. The auditor should particularly note, in the case of PSD sources, whether and at what point in the process the Federal Land Manager (FLM) is notified of any pending agency action on a source locating within 100 km of a Federal Class I area. In addition, the auditor should identify, for information gathering purposes, any other criteria used to determine whether FLM notification is necessary.

Application Documentation and Determination of Completeness --

Good documentation concerning PSD determinations is necessary because of the obligation in Section 165 of the Clean Air Act to facilitate the potential review of all relevant information by the public and to limit the processing time for PSD permits to one year. However, it is generally good practice in any event to notify all permit applicants promptly both of deficiencies in their application and of the satisfaction of these deficiencies when this occurs.

The following questions on application documentation and completeness should be asked:

1. Is there a review to see if a company's permit application is complete? If so, is the company informed promptly concerning the status of its application?

For PSD, the Clean Air Act in Section 169 uses the submittal date of a complete application as the basis for establishing the baseline date. The agency is also expected to notify the PSD applicant within a reasonable time period as to the completeness of the application or any deficiency in the application. The auditor's primary concern is to determine whether routine completeness checks are made on PSD permits and whether the applicant is notified of the status of the application.

2. Is a formal record kept on file which documents agency action with respect to a permit application (e.g., receipt, completeness determination, technical staff review, preliminary staff determination, final determination)?

Recordkeeping procedures will vary from agency to agency; however, there should be some formal method of recording the progress of an application through an agency's formal review process. In addition, the agency should be able to demonstrate an ability to gather information in a timely fashion from its files to support the critical decisions made for a given permit. Such recordkeeping can be useful to the agency itself for minimizing the review time for each permit and for streamlining the review process where desirable.

Conformance with Part D Requirements for Compliance by Existing Sources Owned by the Applicant --

1. For major new or modified sources which are subject to Part D of the Clean Air Act (nonattainment area major sources), has the agency ensured that other sources owned by the applicant are in compliance, or on a compliance schedule, with applicable SIP requirements?

Section 173(3) of the Clean Air Act contains the provision concerning compliance by other sources owned by an applicant for a permit to construct and operate a major source in a nonattainment area. Generally, the applicant must demonstrate that this provision is satisfied. Although no

EPA policy has been provided as to how Statewide compliance must be demonstrated, the auditor should verify that evidence exists in the permit file that the applicant has made such a determination. Information collected will be used in part to assess whether policy guidance in this area should be issued.

APPLICABILITY DETERMINATIONS

State and local agencies are expected to strive for the level of consistency needed to satisfy the minimum Federal requirements for subjecting new and modified major sources to preconstruction review. Specific audit objectives are: (1) to determine whether the permit agency is subjecting major source construction to at least the minimum Federal requirements of PSD and NSR regarding source size and geographic location; (2) to determine what requirements may apply to sources exempted from all or part of the permit review and what measures exist to protect against permit circumvention; (3) to gather information pertaining to methods agencies use to discover proposed construction projects which may be subject to permit review; and (4) to determine whether major projects were approved for construction in designated nonattainment areas subject to the construction moratorium (40 CFR 52.24).

Audit Topics

Source Discovery System --

1. What are the formal mechanisms used by the agency to ensure that applicable sources submit construction plans for formal review and approval prior to beginning their proposed construction?

For this audit category, the auditor should collect information pertaining to the permit agency's source discovery system and information pertaining to the system's benefits in subjecting sources to permit review. Where no formal discovery system exists, the discussion should focus on reasons why the agency feels a formal discovery system is not needed. EPA will compile this information, and make it available to all State and local air pollution control agencies. EPA will also assess the need for a formal requirement in this area.

Review Applicability --

State and local governments are expected to regulate both "major" and "minor" construction of air pollution sources. The auditor should verify, through discussions with agency personnel and the review of selected permit files, that the appropriate levels and detail of review are being made.

1. Does the agency apply the proper Federal definition(s) of "source"?

Agencies must use, as a minimum, the appropriate Federal definitions of "source" to make applicability determinations. The number of definitions used by any particular agency will depend upon the specific Federal NSR requirements being implemented by that Agency under an approved SIP or delegated authority. The auditor should consider the following:

For PSD, the agency should use a reasonable grouping of emissions units as one stationary source, classified according to its primary activity, i.e., same two-digit SIC code. The industrial grouping will determine the applicable emissions threshold (100/250 TPY) governing major source status.

For nonattainment areas, including areas where the construction ban (40 CFR 52.24) is in effect, one of two possible definitions of source should apply. That is, either the plantwide definition, as described for PSD above, or the dual definition which considers a "source" to be both the plant and each of its individual pieces of process equipment. Because of the August 17, 1982 (NRDC v. Gorsuch), court ruling against EPA's October 14, 1981, rulemaking to delete the dual source definition and the pending review of this case by the Supreme Court, this year's audit will stress adherence to a source definition which is at least as stringent as the definition contained in the agency's approved SIP, i.e., plantwide or dual source definition. The auditor, in any event, should identify the definition actually being used by the agency and report it for information gathering purposes.

For NSPS and NESHAPS, the applicable "source" is defined by various subparts of 40 CFR Parts 60 and 51, respectively. The auditor should verify that the NSPS/NESHAP applicability determinations are made independently of the PSD or nonattainment NSR determinations. This is particularly important where the PSD or nonattainment NSR requirements do not apply, e.g., "minor sources," "major sources," but de minimis net increases for the pollutant of concern, or where exemptions from the PSD or nonattainment NSR requirements are otherwise granted by the agency.

The following should be emphasized for major sources:

2. Does the agency use typically the best available emissions projections and federally enforceable restrictions[*] in defining a new major source's (or unit's) "potential to emit"?

The permit agency should screen routinely the emissions calculations and related information provided by the applicant. Emissions should be calculated using reliable emission factors. In addition, permit restrictions that limit design capacity utilization should be documented clearly and made an enforceable part of the permit.

3. Does the agency routinely use an existing source's "potential to emit" to determine major source status for proposed modifications?

Major source status must be based on a source's maximum design capacity, which may take into account all control equipment and operating restrictions which are federally enforceable.[*] (See PERMIT SPECIFICITY: Permit Conditions, #4.) The potential to emit may be overlooked, particularly when actual emissions are significantly less than the applicable major source cutoff size. The auditor should inquire about agency policy and procedures in this regard and review several permits for modifications which did not undergo review for PSD or nonattainment NSR.

4. Does the agency use as its netting baseline actual, TPY emissions?[*]

Once the major status of the existing source has been affirmed, the applicability review of proposed modifications should be based on the net change in actual emissions on a tons-per-year basis. Actual emissions estimates generally should be based on either: (1) reasonable engineering assumptions regarding actual emissions levels and representative facility operation over a two-year period, or (2) federally enforceable emissions limits[*] which are determined on a site-specific, case-by-case basis so as to be representative of actual source emissions. Where an emissions unit has not begun normal operations, the potential to emit of the unit should be used.

5. Verify that the agency does not allow for "double counting" of emissions decreases used for netting purposes.

Adequate safeguards should be taken by the agency to prevent the use of contemporaneous decreases in actual emissions if the decreases are not creditable. For one, contemporaneous emissions decreases should be surplus and not credited more than once. No decrease previously relied on by a PSD source can be considered again in determining the net change of a current or future modification. In addition, no emissions reduction which has occurred or is scheduled to occur pursuant to the SIP's attainment strategy can also be counted for netting purposes. Finally, in nonattainment situations, no reduction relied on previously to meet the reasonable further progress requirement of Part D of the Clean Air Act can be used for calculating emissions. The auditor should inquire about the agency's policy and procedure for preventing double counting and should request any examples of situations in which double counting was disallowed. It may be difficult and tedious for the auditor to discover independently any cases involving double counting; therefore, such efforts are not recommended.

6. Does the agency adequately address fugitive emissions[*] in calculating the "potential to emit" and the "net emissions increase"?

Fugitive emissions, to the extent they are quantifiable and emitted by any of the 28 listed source categories, should be included in the emissions calculations for determining whether a source is major.

For other source categories, the source first must be considered major before fugitive emissions are counted in the potential to emit. The auditor should verify that the emissions factors used to calculate fugitive emissions are documented and reviewed by the agency independently from any use of such factors by the applicant.

The following questions should be asked concerning geographic applicability.

7. Does the agency properly apply the §107 area designations when determining what type of preconstruction review will be required of major construction?

In general, all major construction should be required to undergo PSD review for all regulated pollutants emitted in significant amounts when the area of proposed construction is designated as attainment or unclassifiable in the SIP for at least one criteria pollutant. Exceptions to this rule apply to exempted sources and pollutants. In the latter case, nonattainment NSR requirements would apply for each nonattainment pollutant emitted in major quantities.

8. Verify that the agency does not approve major construction projects in designated nonattainment areas under an EPA-imposed construction moratorium.

While minor source growth is not affected by the imposition of a construction moratorium, new major sources or major modifications (i.e., major with respect to the nonattainment pollutant) must not be permitted to construct during the effective period of the moratorium. Exceptions to this rule that are found to exist should be identified.

For minor source categories, the following question should be asked.

9. Does the agency issue permits to "minor" construction?

The permit agency should have some program to review new and modified projects whose emissions do not require a "major" review . The designation of "minor" would include sources whose net emissions, after considering the appropriate contemporaneous emissions changes, do not exceed the prescribed significance levels and, therefore, are not subject to PSD or nonattainment NSR requirements prior to approval. The auditor should identify the typical level of review given to "minor" construction.

The following questions should be asked concerning permit exemptions.

10. For sources exempted from both PSD and nonattainment NSR requirements, does the agency continue to apply other permit requirements?

11. Are all exempted sources subject to some type of registration system?

A number of legitimate exemption provisions exist. Examples of such exemptions include nonprofit health and education institutions (when requested by the Governor); existing sources undergoing routine maintenance, repair, or replacement; and existing major stationary sources where construction results in no significant net emissions increase. Even though these exemptions may be allowed, other preconstruction review and permit requirements generally apply to major sources. The permit agency should at least account for such sources in the emissions inventory and be aware of the control devices in use, as well as specific source operating conditions. The auditor should verify that the agency employs reasonable mechanisms to ensure at least a minimal review of "exempted" sources.

Permit Circumvention --

The audit should verify that the following practices are not allowed:

Fragmented permit applications -- Can a source divide its construction plans into a series of applications in order to avoid major review?

Permit modifications -- Can the substantive conditions within the construction permit be overridden without new analyses of the affected provisions or public notification? EPA will also be collecting information on the appropriate criteria for processing proposed permit modifications and the need to formalize such criteria.

BACT/LAER DETERMINATIONS

The primary objective is to assure that good, well-supported, BACT/LAER determinations are made across the nation. Secondary objectives are to measure the frequency of BACT/LAER determinations set equal to existing new source performance standards, and to determine the amount of legitimate attention being given by review agencies to the requirement for the application of LAER on new and modified major sources constructing in nonattainment areas.

Audit Topics

Pollutant Applicability --

1. Does the BACT analysis consider each regulated pollutant emitted in significant amounts?

Pollutants regulated under the Clean Air Act are subject to a BACT analysis if they would be emitted in significant amounts by the source construction subject to PSD. A pollutant subject to regulation under the Clean Air Act generally has had a standard of performance under §111 or

112 and/or NAAQS promulgated for it. The analysis for the subject source should address both fugitive and nonfugitive emissions. The auditor should verify that the BACT analysis considers all significant emissions increases rather than being restricted to criteria pollutants or major emissions changes.

Control Strategy Alternatives for BACT --

1. Does the review agency require the consideration of more than one control alternative? To what extent are economic, energy, and non-air environmental impacts considered in the BACT analysis?

In selecting BACT, the applicant generally should consider more than one control strategy, unless it can be demonstrated that the single proposed strategy clearly represents the highest degree of continuous emissions reduction available. In all cases, the control strategies considered should be technically feasible and should address the economic, energy and environmental impacts of the particular alternative. Quantifiable impacts should be identified. The auditor should verify that adequate alternative control strategies are included where appropriate.

2. What checks does the review agency employ to confirm the BACT analysis?

In each case, the BACT analysis submitted by the applicant must be reviewed independently by the permit agency. In particular, candidate control equipment should be assessed to ensure that reasonable performance claims, including consideration of continuing compliance, are being made. Where the alternative representing the most stringent emission reductions is not selected, the permit agency should review carefully the alternatives to ascertain that the most appropriate one was used. The agency should routinely check to see whether any technically feasible alternatives were not considered, and why. The auditor should verify that the agency performs an adequate independent review of the BACT analysis submitted by the applicant.

BACT/LAER Baseline --

1. What tendency is there for the agency's BACT/LAER determinations to conform exactly to minimum EPA requirements?

For each permit reviewed, which was subject to BACT or LAER, the auditor should note the regulatory baseline assumed by the review agency. In how many instances do the agency's BACT/LAER determinations conform exactly to existing SIP, NSPS, or NESHAP requirements? The auditor should verify that adequate documentation is provided for those determinations which simply meet the minimum requirements. For cases where LAER determinations conform exactly to NSPS, the auditor should examine the reasons why LAER was not determined to be a more stringent limitation.

2. Does the review agency make use of the BACT/LAER clearinghouse? Has the clearinghouse been found to provide useful information?

The BACT/LAER Clearinghouse is intended to serve a number of useful purposes, namely, (1) to provide State and local agencies with current control technology determinations, (2) to summarize recent determinations for sources of similar size and nature, and (3) to provide data on the emission limits imposed on new and modified sources. For the purpose of providing feedback to EPA, the auditor should get information from the agency regarding the extent to which the clearinghouse is used, ways to improve it, and the reason(s) for any decision not to participate in the program. As participation in the clearinghouse is voluntary, the auditor must avoid any criticism of nonparticipation.

AMBIENT MONITORING

The audit of ambient monitoring procedures is important in order to achieve a level of consistency which assures compliance with minimum Clean Air Act requirements for the submittal of preconstruction ambient monitoring data by PSD sources.

Audit Topics[1]

Data Submittal Criteria --

1. Under what circumstances is a source required to submit preconstruction ambient monitoring data?

Every PSD source with significant emissions of a particular criteria pollutant, where both the existing air quality and the impact of the source or modification are significant, must submit data, unless exempted under provisions for temporary emissions or compliance with the Offset Policy. Only PSD sources are required to submit such data. The auditors should check enough files to audit at least one source where the preconstruction

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[1]In general, State and local agencies should implement air monitoring procedures for PSD in a manner consistent with EPA's "Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD)," as revised February, 1981. The air monitoring audit topics for FY 84 touch on only a limited portion of those contained in the PSD Monitoring Guideline. However, in addition to covering the three specific audit topics identified herein for FY 84, the auditor should discuss the monitoring guideline with each audited agency in order to evaluate its adequacy, and to identify specific air monitoring topics that would be appropriate for the FY 85 audit.

monitoring requirement was likely to have applied. In addition, for PSD sources not required to submit data, the applicable exemption should be clearly stated in the preliminary determination.

Representative Data vs. Source Monitoring --

1. Under what circumstances may a source submit representative existing data, rather than conduct new monitoring?

Use of representative data is restricted by the criteria described in the Ambient Monitoring Guidelines for PSD. Generally, only new sources in remote areas may use existing data gathered at sites greater than 10 km away. For all sources in flat terrain, monitors within 10 km are acceptable. For complex terrain the guidelines are very difficult to meet, and new data is almost always required. In addition to the monitor location criteria, there are also restrictions concerning data currentness and quality. The auditor should be familiar with the guidelines concerning representative data and verify that the audited agency is following them.

Quality Assurance of PSD Ambient Monitoring Data --

1. Do the source monitoring data adhere to PSD quality assurance requirements?

The Ambient Monitoring Guidelines for PSD contain minimum quality assurance requirements for PSD monitoring. The detailed criteria for quality assurance should not be audited by the new source review auditors. The Regional ambient monitoring staff should audit quality assurance procedures. It is important that the two groups discuss in advance the division of responsibility of audited areas, to avoid overlap or omissions. The new source review auditor should determine: (1) whether a monitoring plan was submitted by the source and evaluated by the permitting agency; (2) whether a quality assurance plan was submitted by the applicant; and (3) whether the permitting agency evaluated the data for compliance with 40 CFR 58 Appendix B.

AMBIENT IMPACT ANALYSIS

Before a permit is granted, the permit agency must verify that no national ambient air quality standards will be violated. In the special case of a PSD permit, the agency must further verify that no allowable PSD increment will be exceeded by the source under review. In both cases, the ambient impact analysis must be reviewed carefully by the permit agency responsible for managing the ambient air quality levels. The auditor should determine the adequacy of the ambient air analysis performed as part of the preconstruction review.

Audit Topics

PSD Increment Consumption --

Allowable PSD increments exist only for SO_2 and TSP at the present time. There are a number of important considerations that the permit agency must routinely take into account in order to ensure that the maximum allowable increments are not exceeded. The permit agency must give the proper attention to such things as the baseline concentration, the appropriate emissions changes for increment consumption purposes, long and short-term increment averaging periods, and special Class I area impacts.

1. Does the agency adequately consider the baseline concentration and emission changes which affect increment consumption?

The baseline concentration generally reflects actual emissions occurring at the time of receipt of the first complete PSD application in the §107 attainment or unclassifiable area. This ambient concentration is adjusted to include projected emissions of major sources commencing construction before January 6, 1975, but not in operation as of the baseline date, and to exclude the impacts of actual emissions changes resulting from construction at a major stationary source commencing after January 6, 1975.

Changes in emissions contributing to the baseline concentration from any source subsequent to the baseline date and from any major source construction commenced after January 1, 1975, can either consume or expand the PSD increment. Where actual emissions cannot be used, i.e., the source has not yet begun to operate, or sufficient operating data is not available, then allowable emissions must be used. The auditor should verify that the agency considers the appropriate emissions changes relative to the baseline concentration.

2. Does the agency perform or have plans to perform periodic assessments of PSD increment consumed?

Often the increment assessment is done only on the sources that have been subject to PSD. Periodically, the reviewing agency should assess the increment consumption of all increases in emissions, including minor and area sources. Frequency of such assessment will depend to a large degree on the growth rate of the area involved. Also, prior to any SIP relaxations involving a change in emission limitations, the emissions changes must be assessed to verify that the PSD increment(s) would not be violated.

3. Are long and short-term PSD increments being given adequate consideration as part of the ambient impact analysis?

Both TSP and SO_2 have long and short-term averaging periods for which PSD increments have been established. These maximum allowable increases are not to be exceeded more than once per year for other than an annual time

period. The auditor should verify that the application considers each averaging period with complete documentation in the permit file.

4. Does the agency allow any exclusions from increment consumption?

Agencies with PSD rules in their SIP may consider the exclusion of certain emissions from the increment analysis. These exclusions are described in 40 CFR 51.24(f). The auditor should verify that where exclusions are granted they are implemented consistent with the federal criteria.

It should also be noted that an agency which conducts the PSD program under authority delegated by EPA cannot utilize the exclusion provisions unless a request from the governor to do so was made before May 7, 1981. (See 45 FR 52719, August 7, 1980.) The auditor should verify that only eligible agencies are utilizing the provisions for excluding certain emissions from increment consumption.

5. Does the agency make an adequate assessment of new sources and modifications on the Class I area increments?

For sources proposing to locate near a Class I area, an increment analysis may be required under conditions that would not trigger an analysis in any other locations. Any emissions from a proposed source should be considered significant when the source would locate within 10 km of the Class I area and cause an ambient impact equal to or greater than 1 ug/m^3 (24-hour average). Generally, sources locating within 100 km of a Class I area should be screened to determine their impact on the Class I area.

NAAQS Protection --

1. What emissions baseline does the agency require to be used to evaluate the impact on the NAAQS of new and modified sources?

States may differ as to the emissions baseline used to protect the NAAQS. In some cases, the allowable emissions from all sources must be used for modeling air quality. In other cases, the modeled allowable emissions from the proposed source or modification are added to the background air quality which is based solely on monitoring data. The auditor should identify the emissions baseline required by the agency and gain an understanding of the specific approach utilized to estimate the impact of a new or modified source. This information will be used to assess current practices and for consideration of future policy development.

2. Does the agency routinely evaluate the ambient impact of minor source construction?

Minor source construction is not likely to undergo rigorous ambient analysis, even when required to obtain a permit. Yet the cumulative impact of numerous minor sources could result in significant air quality concentrations. The auditor should determine the extent to which minor source growth is analyzed routinely in order to protect the NAAQS.

For FY 84, the audit of modeling procedures focuses on the model selection process which should be done consistently with the modeling guideline. In addition to covering this specific topic for FY 84, the auditor should discuss the modeling guideline with each audited agency in order to evaluate its adequacy, and to identify specific modeling topics that would be appropriate for the FY 85 audit.

3. Does the agency's ambient impact analysis provide adequate protection against the development of "hot spots"?

In evaluating the NAAQS, the ambient impact analysis should determine the maximum long-term and short-term impacts of the proposed new source or modification beyond its property line. However, maximum ambient impact may occur actually at other locations when the impacts of other sources and background data are taken into account. Hot spots may also occur where growth resulting from minor sources or sources otherwise exempted from detailed permit review are not subjected to a rigorous ambient analysis. The auditor should verify that the agency performs a detailed analysis of a source's maximum ambient impact beyond those areas of maximum impact of the source alone.

Dispersion Models[2] --

1. Does the agency use adequate models to carry out the ambient impact analysis?

2. Does the agency perform an independent, internal review of the modeling analysis contained in the permit application?

EPA has recommended the use of a number of models for specific types of applications and has stated its preference for certain new models for analyzing the impact of sources on ambient air quality. However, utilization of any particular model should be consistent with the design and intent of the model itself. Some models are very specific as to terrain and applicability. The auditor should verify that impact analyses are being performed with the appropriate models, and that the permit agency conducts

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[2]EPA guidance is provided in "Guideline on Air Quality Models," EPA-450/2-78-027, April 1978. This report is currently undergoing revision. Additional guidance is also provided in "Regional Workshops on Air Quality Modeling: Summary Report," OAQPS, April 1981 and "Guideline for Use of City-Specific EKMA in Preparing Ozone SIP's," EPA-450/4-80-027, March 1981. EPA's "Guideline on Air Quality Models" includes, among other things, guidance on the selection of air quality dispersion models.

For FY 84, the audit of modeling procedures focuses on the model selection process which should be done consistently with the modeling guideline. In addition to covering this specific topic for FY 84, the auditor should discuss the modeling guideline with each audit agency in order to evaluate its adequacy, and to identify specific modeling topics that would be appropriate for the FY 84 audit.

its own independent review of the source's analysis to ensure conformance to accepted procedures. In addition, the auditor should verify that all PSD modeling is in accordance with EPA guidance, or EPA approval in the case of nonguideline models, prior to their usage.

EMISSIONS OFFSET REQUIREMENTS

Part D of the Clean Air Act intends that certain stringent requirements be met by major sources approved for construction in nonattainment areas. One such stringent requirement calls for the proposed source or modification to get emission reductions (offsets) from existing sources in the area such that there will be reasonable further progress toward attainment of the applicable NAAQS. In its FY 84 audit, EPA intends to ensure that State and local agencies are carrying out the emissions offset requirements in a manner consistent with the Act mandate. The specific objectives are: (1) to assure that reviewing agencies are requiring, where appropriate, adequate emissions offsets as a condition to authorizing major construction in designated nonattainment areas; and (2) to assure that emissions offsets are being obtained in a manner consistent with RFP.

Audit Topics

Enforceability --

1. Does the agency require that all offsets be federally enforceable[*]?

All emissions reductions used to offset proposed new emissions must be made enforceable. This is true whether the offsets are obtained from another source owned by the applicant or from a source not under common ownership. In either case the offsets should be fully agreed upon and documented, preferably within the permit of the source from which the offset is obtained. In addition, federal enforceability requires that an external offset be made a part of the applicable SIP. This would require a specific SIP revision if the offset is not made part of a permit issued pursuant to the State's construction permit requirements approved pursuant to 40 CFR 51.18 or 51.24. Conditions to State or local operating permits are not always considered to be part of the applicable SIP(s). The auditor should verify that all offsets are well documented, which includes well-defined emissions limits pertaining to the emissions offset.

Consistency with RFP --

1. Does the agency routinely ensure that the emissions offsets are not otherwise needed to show RFP or attainment?

The proposed emissions offset cannot be otherwise needed to show RFP toward attaining the NAAQS. To use the same emission offsets for two different purposes would result in "double counting" those emissions with the net result being subsequent deterioration of air quality. The auditor should seek assurance from the agency that compliance with annual RFP increments is independent of the offsets being obtained from proposed new or modified sources.

2. Does the agency require that the emissions baseline for offsets is expressed in the same manner as for RFP?

In order for the system for getting offsets to be consistent with the demonstration of reasonable further progress, they must both be expressed in the same emissions terms, i.e., actual or allowable emissions. Section 173(1)(A) of the Clean Air Act sets the emissions offset baseline as the "allowable" emissions of the source, but also requires that the offsets must be sufficient to represent RFP. Consequently, where the RFP demonstration is based on an actual emissions inventory, EPA requires that offsets to be attained by a proposed new or modified source also be based on actual emissions. The auditor should verify that there is consistency in the emissions baseline for offsets and the RFP demonstration.

3. Does the agency's offset requirement cover other emissions increases since the last offset review?

In order to comply with the Act requirement that emissions offsets must be sufficient to represent RFP, any increases in area and minor source growth not considered in the approved RFP demonstration must be covered by offsets required of the proposed new or modified source. Failure to account for these emissions increases would result in air quality deterioration just as in the case of "double counting." The auditor should verify that area and minor source growth considerations are made in order to establish the offset level, particularly when more than one year has passed since the last offset.

Timing of Offsets --

1. Does the agency require that offsets occur on or before the time of new source operation?

Section 173(1)(A) of the Clean Air Act requires that offsets be obtained and in effect "by the time the [new or modified] source is to commence operation." No specific guidance is available to identify when a source has officially "commenced" operation. Some agencies may allow a shakedown period similar to the shakedown provision allowed for net emissions increases in 40 CFR 51.18(j)(1)(vii)(f). The auditor should focus primarily on whether agencies routinely seek to get offsets in effect in a timely manner, which may include for replacement facilities a shakedown period not to exceed 180 days, and whether the effective date for the offsets is documented in the agency's files.

2. Does the agency allow offsets resulting from early source shutdowns or production curtailments?[*]

In general, an agency should not allow emissions reduction credit for source shutdowns or curtailments which occur before the date of the new source application. The main exception would occur in cases where the new unit is a replacement for a unit shut down or curtailed at the same plant.

The auditor should also be aware of other possible allowances for shutdowns under any applicable EPA-approved State emissions banking or trading rules. The auditor should attempt to verify that offsets are actually granted in accordance with all specific criteria governing offsets for shutdowns.

Permanence of Offsets --

While there is no clear language in the Clean Air Act or in any pursuant EPA regulations requiring that emissions offsets be permanent, it is clear that emissions used for offset purposes cannot be allowed to recur and interfere with a SIP maintenance strategy. One particular area of concern is how existing offsets are handled in the event that a nonattainment area is subsequently designated attainment. The auditor will identify agency policy, for information gathering purposes, regarding the permanence of offsets by pursuing the following two questions:

1. Under what conditions would emissions offsets not be considered permanent?

2. What type of source (permit) review would be required pursuant to a SIP relaxation involving emissions offsets?

PERMIT SPECIFICITY AND CLARITY

This phase of the audit focuses on the final permit issued by the State or local agency to the proposed new source or modification. The objectives are: (1) to assure that permits are issued in a form which is clear, concise, and enforceable; (2) to determine the extent to which special terms and conditions are used in the permits; and (3) to assess the need for federal guidance concerning the specificity and clarity of permits.

Audit Topics

Source Identification --

1. Does the agency identify all emissions units and their allowable emissions on the final permit(s)?

Agencies may vary in the number of permits that they issue to a source having more than one emissions unit. No federal requirements exist to govern the number of permits which may apply to any source. What is important, however, is that each emissions unit is identified clearly along with its allowable emissions rate, or design, equipment, work practice or operational standard, as may be appropriate for the particular source. It is particularly important, when an agency issues one permit to a large complex, that each emissions unit is identified separately along with its allowable emissions rate, as opposed to a singular composite emissions rate for each pollutant. The auditor should verify that, for each permit issued, there is separate and clear identification of the affected emissions units and their corresponding allowable emissions.

Permit Conditions --

1. Does the agency have an established format detailing the compilation of special terms and conditions?

Permits issued to certain sources may entail special terminology unique to that type of source. These terms may need to be defined so that they may be readily understood. Also, special conditions (such as those limiting the way that the source is operated, specifying how it and its required control devices are to be maintained, addressing the use of continuous emissions monitors, or certifying Statewide compliance) may require special attention in the permit. These conditions are essential in that they are an enforceable means to ensure that the permitted source will meet its NSR obligations. Therefore, they must be added to any standard conditions which typically accompany the permits issued by State or local agencies. The auditor should identify the formats in use so that EPA can make such information available for others to consider using.

2. Are the allowable emissions rates stated or referenced in the permit conditions?

In addition to identifying the allowable emissions, equipment or other standard for each separate emissions units, it is important that such limitations be addressed adequately in conditions to the permit(s) for a new or modified source. The auditor should examine the adequacy of the conditions in terms of their clarity and enforceability. The auditor should pay close attention to the use of clear and precise averaging periods over which the various pollutant emissions are to be measured. Also, the emissions rates must be consistent with acceptable measurement procedures; otherwise, compliance will be difficult if not impossible to ascertain and the conditions would be unenforceable.

For those situations where emissions limitations are different from those specified in the SIP and are not identified in the permit, the auditor should note exactly how the allowable emissions are specified. The auditor should seek to determine whether the method used is sufficient to inform the source and the general public of the binding allowable emissions limitations.

3. Are the compliance test methods stated or referenced in the permit terms and conditions?

Test methods that will be used to determine compliance of the source with its allowable emissions rates should be clearly defined or referenced in conditions to the final permit. These compliance tests should be specific to the individual emissions units to which they are to apply. The auditor should verify the documentation of the compliance test methods and their adequacy for covering each applicable emissions unit for which allowable emissions rates are defined. Where test methods are not specified in the permit, the auditor should determine whether the SIP specifications are otherwise applicable and sufficient.

4. If a source's calculated potential to emit is based on less than full design capacity and continuous, year-round operation, are all limiting restrictions clearly identified in the permit?

If the source's calculations assume less than design capacity or fewer than 8,760 operating hours per year, then any limits which restrict the operating rate, or hours of operation, or both, must be included as permit conditions. Such conditions are to be federally enforceable[*] before they can be accepted to lower the source emissions. The auditor should verify that all assumptions made to limit the operation of the source below capacity and 8,760 hours per year are clearly stated as requirements in the permit.

5. Is the information accompanying the permit application considered to be enforceable?

Generally, information contained in the permit application should be considered an enforceable part of the final permit. That is, a failure to meet the source specifications and information provided in the permit application could represent a violation and therefore invalidate the applicable permit. In fact, the source's approval to construct and to operate is based on information developed pursuant to the source-specific information provided by the applicant. The auditor should determine the method(s) routinely used by the agency to incorporate information from the application into the permit.

4. COMPLIANCE ASSURANCE

INTRODUCTION

The compliance assurance element of the National Air Audit System will examine State and local programs which are responsible for the compliance of sources subject to: requirements of State Implementation Plans adopted to meet national ambient air quality standards (Section 110); and, where delegated to the States and local agencies, standards of performance for new stationary sources (Section 111); and national emission standards for hazardous air pollutants (Section 112). There are approximately 30,000 sources in these categories for which EPA shares a concern as to their compliance status. Compliance activities directed to these sources form the primary basis for which this audit should be conducted.

In order to achieve the goals of the Clean Air Act, it is vital that State and local agencies are implementing programs to periodically assess the compliance status of these sources and are taking necessary actions to return violators to compliance. The compliance assurance audit will examine the success of State and local agencies' efforts to meet these goals.

The major parts of the compliance assurance element are:

° Periodic review and assessment of source data

° File review

° Overview inspections

PERIODIC REVIEW AND ASSESSMENT OF SOURCE DATA

Through its Compliance Data System (CDS), EPA will continue its present practice of ongoing review of State and local compliance activities. It is important that EPA, States, and local agencies continue a systematic flow of information into the CDS. EPA believes that annual review for detecting violations is too infrequent to properly ensure that violating sources are identified and corrected. Thus, EPA reviews information on State and local compliance and enforcement activity at least quarterly.

Information submitted by State and local agencies for EPA review should include at a minimum for all Class A[1], NSPS, and NESHAP sources:

1/A Class A source is defined as any stationary SIP source whose potential uncontrolled emissions while operating at design capacity are equal to or exceed 100 tons per year for any regulated pollutant. Design capacity may be limited through enforceable permit conditions to restrict the hours of operation or through physical limitations such as climate or season.

- The date an inspection or source test was conducted at a source and the compliance status of the source found during the inspection.

- Identification of any new sources that should be added to the inventory and sufficient information for CDS entry.

- Any administrative order, consent agreement, or civil or criminal action issued to or brought against a source in the CDS inventory including any compliance schedule with increments of progress.

- Any compliance status change of any source in the CDS inventory. A source is considered to be "in violation" if it is found to be operating with emissions in excess of an air pollution requirement or any substantive requirement of work practice, operation of equipment, or monitoring.

- Progress in meeting a compliance schedule including any increments issued to any Class A, NSPS, or NESHAPS source in the CDS inventory.

To assess the progress that State or local agencies are making in inspecting sources in the CDS inventory, EPA should review the data submitted by each State and local agency. Progress should be assessed by comparing the data with the inspection effort scheduled at the beginning of the year, usually during the Section 105 grant award process. This agreement should specify the percentage and type of source (A1-A2) that will be inspected.

EPA should review data on source compliance status changes submitted during the quarter. Special attention should be given to those sources that remain in violation for two consecutive quarters with no associated enforcement action or schedule for returning them to compliance.

Monitoring of State and local activities and associated compliance changes in the inventory should give EPA a basis for determining the effectiveness of a State or local program. A State or local program that routinely inspects its sources, identifies violators, initiates compliance actions, and shows violating sources moving into compliance usually has a normally operating compliance and enforcement program. A State or local program that does not show this type of pattern may be experiencing problems with some part of its program. This should be investigated thoroughly during the annual visit to the State or local agency for the file review portion of the audit.

In addition to the previously discussed ongoing review, and before the annual audit visit, the EPA Regional Office should furnish each State or local agency a summary of the status of sources in its program for review and comment concerning the summary's completeness and representation of the compliance picture within that agency. This summary should be based on CDS information available to EPA just before the annual visit and consists of:

° Progress in meeting agreed upon source inspection targets.

° Sources whose compliance status has changed.

° Progress of sources meeting compliance schedules.

° Efforts to return violating sources to compliance.

After discrepancies are resolved, this compliance summary should be used to describe the status of compliance for sources in the audit report.

FILE REVIEW

An effective State and local compliance program must have a well documented file on each source. This file should be available for use by management and field personnel. The structure and location of files are optional as long as any needed data can be supplied upon request. The files should contain information supporting the compliance status of each source. The audit team should review representative samples of files kept on sources in that State or local agency. The following questions are examples of information that may be sought.

Organization of Files

1. Can the reviewer, from information available in the file, determine the programs to which the source is subject? If not, why? The various programs are SIP general, PSD, NSPS and NESHAPS.

2. From the information available in the files, can the source's compliance status be determined for all regulations to which it is subject?

Check For Each File

1. Does the file contain documentation supporting the source's compliance status?[2] (At a minimum, the date of the last visit or excess emission report review, person making the compliance determination, and what that determination was).

2. Are all major emission points identified and each point's compliance status indicated?

2/For the purposes of this report, the term source is synonymous with facility and consists of one or more emission points or processes.

3. Does the file identify which emission points are subject to NSR, NSPS, PSD, and NESHAPS requirements? If yes, are regulated continuous emission monitoring (CEM) requirements or permit conditions shown to be in compliance and documented? Are required start-up performance tests included?

4. Does the file identify special reporting requirements to which a source may be subject (i.e., excess emission reports from a malfunction or a CEM requirements) and are any such reports found in the file?

5. Does the file include technical reviews, source tests, CEM performance specification tests, permit applications, correspondence to and from the company, and other supporting documentation?

6. What methods of compliance documentation are used (e.g., source test, CEM, fuel sampling and analysis, inspection, certification, engineering analysis, etc)?

7. Was the method used to ascertain compliance the most appropriate one for the type of source being documented? Is the method prescribed by NSPS, NESHAPS or SIP? If not, explain.

8. If the documentation includes an inspection, does the report contain control equipment parameters observed during the inspection (pressure drops, flow rates, voltages, opacities)? Were observed control equipment operating parameters or CEM emission levels compared to permit conditions, design parameters, or baseline observations? Were plant operating parameters recorded?

9. If documentation is by a stack test, were visual emission observations or CEM emissions levels and operating parameters recorded during the test? Was there a quality assurance procedure used with a stack test? Who conducted, observed, and reviewed the test?

10. Are enforcement actions contained in the file?

11. Are compliance actions taken in a timely manner? Do any take longer than 30 days from the time of violation detection? If yes, how long?

12. Is there documentation to support the enforcement action?

13. Is there documentation to show follow-up to the enforcement action (reinspection, letter, etc.)?

14. Are citizens' complaints documented in the file and followed up?

15. What action does the Agency take with respect to excess emission reports?

Checklist For File Reviews

1. Source Name/Location _____ Compliance Status _____
   State Identification Number _____

2. Organization of Files

   ° multiple files? all programs identified?
   ° chronological index to file (document name/date)

   _____ _____
   _____ _____
   _____ _____
   _____ _____
   _____ _____
   _____ _____
   ° missing documents: _____

3. Sequence of Actions

	Yes*	No*
° Is there a logical sequence, e.g., inspection, 30-day follow-up inspection, State NOV, State order? Litigation?	___	___
° Periods of delay?	___	___
° Multiple final compliance date extensions?	___	___
° Repetitive actions? Increased intensity of enforcement response?	___	___

4. Adequacy of Inspection Report(s)

° Process and operating parameters defined?	___	___
° Regulation and emission limit specified?	___	___
° Compliance method or inspection procedure specified?	___	___
° Quality assurance identified?	___	___
° VE readings in accordance with Method 9?	___	___
° Actual emissions quantified? If yes, by what method?	___	___
° Can compliance be determined?		
For individual points	___	___
For different programs	___	___
For the entire source?	___	___
° CEM monitor and recordkeeping procedures inspected?	___	___

5. Compliance Status

° Does file information agree with historical CDS?		
° What is the current compliance status in the file? _____	___	___

6. State or Local Actions

° Timeliness of State or local action?		
Number of days to take formal action? _____	___	___
° Action in conformance with formal State or local procedures?		
° State or local action effective?	___	___
° Is compliance logically achieved?	___	___
	___	___

* When appropriate, provide amplifying remarks on back.

7. Enforcement Actions

	Yes*	No*
° What is the most prevalent enforcement response? _____		
° Are penalties considered?	___	___
° Is there a reasoned basis for action or inaction?	___	___

8. Citizen Complaints

° Adequate follow-up?	___	___

The review team should summarize their findings following the file review. The summary should, at a minimum, address the following questions.

1. Do files exist that reflect a reasonable profile of the source?

2. Do the files contain adequate written documentation to support the compliance status reported to EPA?

3. Are violations documented and pursued to return the source to compliance expeditiously?

OVERVIEW INSPECTIONS

In order to provide quality assurance for compliance data in State or local files furnished to EPA, and to promote effective working relationships between EPA and State or local agencies, EPA should implement an overview inspection program. This program should ensure consistent application of regulations and policies.

EPA should select approximately 2-3 percent of the sources in the CDS inventory for an inspection. EPA should notify the State and local agencies of its intent at least 30 days before the inspection is to take place. The inspection should be an independent verification of the source's compliance status and should review the State and local inspector's procedures for determining compliance at a source. The inspection should also be an opportunity for State/local and EPA inspectors to share their skills, to identify their differences, and to gain a better understanding of the operation and uniqueness of sources.

A summary of the results of these inspections and State/local overview procedures should become a part of the compliance assurance audit report.

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* When appropriate, provide amplifying remarks on back.

5. AIR MONITORING AUDIT GUIDELINE

INTRODUCTION

An air monitoring quality assurance (QA) audit program is an integral part of any effective air monitoring program. This audit guideline can be used by an air pollution control agency to increase the effectiveness of its air monitoring program. The air monitoring QA audit program provides a means to independently check an air pollution control agency's quality control procedures. Adherence to a comprehensive QA program will help assure that air monitoring data are representative, complete, comparable, and of adequate quality to meet the monitoring objectives.

Quality assurance audits are conducted pursuant to Federal regulations presented in 40 CFR Part 58. This audit guideline outlines a base level program which EPA, State, and local air pollution control agencies can use jointly to:

- Meet EPA data quality assessment requirements per 40 CFR Part 58;
- Minimize loss of air quality data due to malfunctions or out of control conditions; and
- Agree on areas where air monitoring improvements should be made.

Evaluation of an air monitoring program is accomplished through the combination of performance and system audits.

Performance audits are independent checks to evaluate the quality of data produced by the total sampling and analysis system. Performance audits establish individual instrument and overall agency accuracy. Performance audits are conducted on a minimum of 25 percent of a reporting organization's* instruments every quarter so that each instrument is audited at least once a year. Performance audits enable a quantitative appraisal of data quality.

System audits are on-site inspections and reviews of an agency's entire QA program. It is a qualitative appraisal of an organization, their written procedures, records, and documentation procedures. A system audit may be conducted at any time.

Each air monitoring agency should establish their QA program according to their particular needs and to meet the requirements of 40 CFR Part 58. It is recommended that each air monitoring agency develop standard operating

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* See 40 CFR Part 58 for explanation of reporting organization.

procedures (SOP's) for air quality monitoring and performance audits. Written copies of SOP's should be available to field station operators and auditors. SOP's should be followed consistently and updated periodically.

AUDIT PROTOCOL

Advance Preparation

Performance and system audit schedule planning should be conducted well in advance. A preliminary performance audit schedule listing the sites to be audited should be sent through the appropriate management channels of the affected agencies. The auditor should then contact the individual(s) responsible for the instrument to be audited at the beginning of each calendar quarter to confirm the scheduled audit date. The auditor should call again shortly before the scheduled audit date to arrange the time and meeting place. For systems audits, a letter suggesting an audit date should be sent to the appropriate contact at least six weeks in advance of the audit. This also should be followed up by a telephone call prior to the scheduled audit date to confirm time and a meeting place.

On-site Visit

Performance Audits--

The purposes of an on-site performance audit are to:

- Assure that the air monitoring network design and siting is in conformance with 40 CFR Part 58;
- Assure that an agency's quality control procedures are being followed and are adequate;
- Check the instrument's response to known standards to establish accuracy;
- Assure that the instruments are designated and operated as reference or equivalent methods in accordance with 40 CFR Parts 50, 53, and 58; and
- Provide the accuracy assessment reports required by 40 CFR Part 58.

System Audits--

The purposes of the on-site visit for systems audits are to:

- Review the entire quality assurance program;
- Determine adequacy of staff, laboratory facilities, and test procedures;

- Determine if the agency's Quality Assurance Manual is up to date and approved;

- Determine the adequacy of data processing equipment and facilities; and

- Review the chain of custody of data, determine whether the official air quality data records are secure, and whether data record alterations are formally documented.

On-site visits also allow the auditing staff to become better acquainted with field personnel and improve communications.

It is desirable to conduct the on-site system audits in the following distinct phases:

- Hold an introductory meeting between the auditors and local agency staff. The purpose of the meeting is to discuss the goals and objectives of the audit. This meeting is to set a cooperative tone and communicate the idea that the purpose of the audit is to enable collection of the most reliable ambient air data;

- Discuss and/or complete the audit questionnaire (see attached) with the person(s) in charge of air monitoring and data analyses;

- Review air monitoring files for chain of custody of the collected data, documentation of corrective actions, air monitoring station logs, data processing procedures, etc.;

- Provide suggestions and provide for a cooperative effort wherever possible; and

- Conduct an exit interview to wrap up the audit visit and inform management of the preliminary results of the audit.

The time spent by the audit team will vary from agency to agency depending upon the distance between the sites, network size, location of laboratory facilities, etc.

- Submit a draft system audit report to the local agency with the findings of the audit. This will provide the agency staff opportunity to comment at an early stage and resolve any misunderstandings before the report is finalized.

- Provide the appropriate agencies a final report on the audit with comments and/or suggestions.

AIR MONITORING AUDIT QUESTIONNAIRE

The purpose of this questionnaire is to provide an overview and summary assessment of an ambient air monitoring program. It is not intended as a substitute for either the detailed and comprehensive systems audit recommended by the EPA (Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II, Ambient Air Specific Methods) or for the systems audit developed by various EPA Regions and States. However, this questionnaire should be used as a guide to the systems audit to ensure national consistency of subjects addressed in the audit. This questionnaire can be completed during or upon completion of the audit.

It is assumed that the staffs of agencies that operate the SLAMS have a working knowledge of EPA air monitoring regulations (40 CFR 50, 53, and 58) and of the references therein. Compliance with the regulations provides reasonable assurance that the data are adequate for regulatory purposes such as determination of attainment or nonattainment. Accordingly, a number of the questions that follow are aimed at determining if the air monitoring regulations are being followed. If an answer indicates noncompliance, then a brief summary of the deficiencies is requested.

1. Network Size

How many SLAMS are operated for each of the criteria pollutants listed below?

Pollutant	Number
Ozone	_____
Nitrogen Dioxide	_____
Sulfur Dioxide	_____
Carbon Monoxide	_____
Total Suspended Particulates	_____
Lead	_____

2. Network Design and Siting

Is the air monitoring network design and siting in conformance with 40 CFR 58 Appendices D and E, and EPA's Quality Assurance Handbook?* _____

3. Network Review

Is the SLAMS network reviewed annually with each station being assigned a SAROAD number, operating schedule, spatial scale, and monitoring objective?* _____

* If answer is NO, give a brief summary of the deficiencies.

4. Instruments and Methods

Are the agency's SLAMS instruments designated as reference or equivalent methods by the EPA and operated in accordance with 40 CFR 50, 53, and 58?*_____

5. Data Processing and Submittal

Does the agency have staff and data processing facilities adequate to process and submit to SAROAD air quality data as specified in 40 CFR 58.35 and Appendix F?*_____ What fraction of the data submitted are more than 45 days late?_____%

6. Data Review

What fraction of the SLAMS sites (by pollutant) reported less than 75 percent of the data (adjusted for seasonal monitoring and site start-ups and terminations)?

Pollutant	Percent of Sites < 75% Data Recovery
Ozone	_____
Nitrogen Dioxide	_____
Sulfur Dioxide	_____
Carbon Monoxide	_____
Total Suspended Particulates	_____
Lead	_____

7. Status of Quality Assurance Manual

Does the agency have a quality assurance manual (QAM) and, if so, has the QAM and any change thereto been approved by the EPA under 40 CFR 58 Appendix A?*_____ Are the agency's air monitoring practices consistent with the QAM?*_____

8. Data Correction

Are the corrections/deletions to preliminary ambient air data performed according to the QAM and noted on the revised documents?_____ Is the basis of any revision to final ambient air data (i.e., submitted to SAROAD or published) formally documented in a permanently maintained file?*_____

* If answer is NO, give a brief summary of the deficiencies.

9. Staff and Facilities

Does the agency have trained staff, adequate facilities, and ready access to NBS traceable gas and flow standards and test equipment needed to conduct biweekly precision checks and quarterly performance (accuracy) audits as specified in 40 CFR 58 Appendix A?*_____

10. Laboratory Facilities

Does the agency's laboratory have procedures, staff, and facilities adequate to conduct the tests and analyses needed to implement the agency's SLAMS monitoring and quality assurance plans?*_____

11. Audit Participation

Does the agency participate in independent and/or interagency audits?* _____ Does the agency participate in the National Performance and System Audit Programs required under 40 CFR 58 Appendix A?*_____ Briefly describe findings and any actions taken as a result.

12. Noncriteria Pollutants

Does the agency provide quality assurance measures for noncriteria pollutant monitoring?*_____ What measures are taken?

13. Accuracy and Precision

As a goal, the 95 percent probability limits for precision and accuracy should be less than ±15 percent and ±20 percent, respectively. How do the precision and accuracy of the agency's instruments compare to this goal for the following pollutants in the last two years?

Pollutant	Precision 19 /19	Accuracy 19 /19
Ozone		
Nitrogen Dioxide		
Sulfur Dioxide		
Carbon Monoxide		
Total Suspended Particulates		
Lead		

* If answer is NO, give a brief summary of the deficiencies.

14. Annual Report

Is the agency submitting an annual summary report as required in 40 CFR 58.26?*_____

How do any deficiencies noted in this summary questionnaire or noted elsewhere in the audit affect the accuracy and reliability of the ambient data collected in the agency? What limitations or precautions should be observed when using these data?

RECOMMENDATIONS AND ANALYSIS

The following steps are recommended to improve the agency's air quality monitoring program: (The expected benefits of each recommendation should be listed as well.)

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* If answer is NO, give a brief summary of the deficiencies.

TECHNICAL REPORT DATA
(Please read Instructions on the reverse before completing)

1. REPORT NO.	2.	3. RECIPIENT'S ACCESSION NO.
EPA-450/2-83-007		

4. TITLE AND SUBTITLE	5. REPORT DATE
National Air Audit System Guidelines for FY '84	November 1983
	6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S)	8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS Office of Air Quality Planning and Standards U.S. Environmental Protection Agency Research Triangle Park, North Carolina 27711	10. PROGRAM ELEMENT NO.
	11. CONTRACT/GRANT NO. 68-02-3510
12. SPONSORING AGENCY NAME AND ADDRESS DAA for Air Quality Planning and Standards Office of Air, Noise, and Radiation U.S. Environmental Protection Agency Research Triangle Park, North Carolina 27711	13. TYPE OF REPORT AND PERIOD COVERED
	14. SPONSORING AGENCY CODE EPA/200/04

15. SUPPLEMENTARY NOTES

16. ABSTRACT

The purpose of developing national air audit system guidelines is to establish standardized criteria for EPA Regions to follow when auditing State air program activities. This document, prepared jointly by the State and Territorial Air Pollution Program Administrators (STAPPA), the Association of Local Air Pollution Control Officials (ALAPCO), and the Environmental Protection Agency, provides national air audit guidelines for air quality planning and SIP activities, new source review, compliance assurance, and air monitoring.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Air pollution Air audit Air quality planning New source review Compliance assurance Air monitoring	Air Pollution Control	13B

18. DISTRIBUTION STATEMENT	19. SECURITY CLASS *(This Report)*	21. NO. OF PAGES
Unlimited	Unclassified	56
	20. SECURITY CLASS *(This page)*	22. PRICE
	Unclassified	